

Exelon Final Comments on Resource Adequacy in Central and Southern Illinois

Introduction

Exelon Generation Company, LLC (Exelon) would like to once again express our appreciation for the Illinois Commerce Commission's (ICC) invitation to comment on resource adequacy in Central and Southern Illinois. The ICC and all the participating stakeholders should be commended for taking this issue seriously. The two workshops proved to be excellent forums to more thoroughly examine this complex and challenging issue. The ICC's leadership and direction on this topic is important as the issue impacts reliability, fuel diversity, jobs and the economy, consumers, demand response providers, electric generation companies, suppliers, and electric utilities.

Our initial comments addressed the current state of the market and offered several suggestions for consideration during the ICC's stakeholder process. In Exelon's view, the ICC and the participating stakeholders may benefit from continuing to explore the resource adequacy challenges in MISO Zone 4 and possible solutions thru a more detailed market and statistical analysis. Significant progress has been made. However, given the importance of this issue and the varied solutions tendered to date, the problem warrants further study. The discussion would benefit from a greater foundational understanding of the market pressures producing MISO Zone 4 price volatility and threats to long-term resource adequacy.

Exelon's primary interest in resource adequacy in MISO Zone 4 stems from our role both as an operator of a nuclear generation resource in Central Illinois and as an active competitive retail energy supplier in the region with customers in the residential, small business, and commercial and industrial classes. Affordable, reliable, and resilient generation physically located in Central and Southern Illinois is vital to Illinois families and the continued competitiveness of the Illinois economy. This is self-evident from the flood of comments the ICC has received on this topic and for those stakeholders that participated in the workshops in Chicago and Hillsboro. The energy price advantage that Illinois residents and businesses in Central and Southern Illinois have enjoyed for decades will decline without substantial changes to resource adequacy in the MISO Zone 4 territory. These final comments are structured in accordance with the ICC's suggested outline and, where appropriate, emphasize several points raised in our initial comments.

I. Resource Adequacy Standards

A. How should resource adequacy be defined and how does resource adequacy compare with or contrast with resiliency and reliability?

Exelon and others have acknowledged in several venues that resource adequacy is a concept distinct from both reliability and resiliency. Indeed, all three concepts play an integral role in ensuring that the lights remain on for Illinoisans. Resource adequacy and the regulatory constructs designed to ensure resource adequacy are far more limited in scope than the other two concepts. Resource adequacy ensures that there are enough actual, physical generation resources available on the system to meet electricity demand during peak load in a wide range of operating conditions. MISO's existing capacity construct is targeted toward ensuring there is an adequate supply margin to cover spikes in electricity demand during the prompt planning year.

Reliability on the other hand encompasses both resource adequacy and the management of grid security. With regard to grid security, reliability refers to the ability of the electric system to serve load notwithstanding traditional disturbances based on weather or forced outages.

In contrast to both resource adequacy and reliability, resiliency contemplates the broader system's ability to prepare for, operate through, and recover from what is termed high-impact, low-frequency (HILF) events. Resiliency concerns the type of systemic threat raised by a HILF event that has the potential to impact a large portion of the generation fleet; specifically, threats raised by human forces, whether they be physical or cyber. Resiliency also refers to the interplay between threats raised by human forces and fuel security. Fuel security risks associated with the overreliance on a single type of generation resource grow particularly acute during HILF events.

B. What entities currently address resource adequacy, how do they do so, and how sufficient are such current measures?

[Examples of issues under this question include: Does MISO's capacity construct ensure resource adequacy and, if so, how? What are ICC's reserve margin setting rights under MISO's Module E tariff? Does the Illinois Power Agency assure resource adequacy in Zone 4? Does MISO's system support resource designation process relate to or shed light on resource adequacy and, if so, how?]

Although the lights have remained on in homes across the region and businesses have continued operation, MISO's current capacity construct is failing to ensure resource adequacy over the long-term. As we have previously stated, Central/Southern Illinois is unique in that it is the only MISO region that has

Exelon Final Comments on Resource Adequacy in Central and Southern Illinois

fully restructured. This means that Central/Southern Illinois relies on the competitive wholesale and retail markets to ensure resource adequacy, while other states within MISO have vertically integrated monopolies that rely on state-mandated revenue and planning to ensure resource adequacy. It is not the Illinois Power Agency's role to assure resource adequacy in Illinois or, more specifically, MISO Zone 4. The existing MISO capacity construct is designed to facilitate short-term bilateral sales by load serving entities (LSEs) within MISO that need capacity to satisfy their obligations for the immediate planning year. The current design lacks an adequate, long-term market price signal that is necessary to incent the retention of existing generation and attract new generation when needed, to promote resource adequacy for customers in Central/Southern Illinois. It is well established that the revenues from the energy and capacity markets are insufficient to cover the costs of merchant generation in the region. MISO itself acknowledges that areas like Southern/Central Illinois do not currently have a mechanism to address long-term resource adequacy.

For residents and businesses in Southern/Central Illinois, relying on a planning reserve auction (PRA) to ensure resource adequacy only in the prompt planning year has resulted in volatility and rate shock. This can be most clearly demonstrated by looking at the results of the Auction Clearing Price (ACP) in the PRA over the past four years. The ACP for the 2017/18 PRA was 1.50/MW-day, versus the 2016/17 ACP of \$72/MW-day. These results were of course in stark contrast to the 2015/16 ACP for Zone 4 of \$150/ MW-day, as compared to the 2014/15 ACP of \$16.76/MW-day.

The current capacity construct in MISO has also led to generators within MISO exporting into the PJM footprint. In PJM's capacity auction for delivery year 2017/18, 4,526 MW cleared from external zones, the vast majority of which was from MISO. Delivery years beyond 2017/18 continue to show between approximately 3,800 MW and 4,600 MW of cleared imports into PJM, again, mostly from MISO. The willingness of resources to export to PJM demonstrates the need to explore ways to improve MISO's capacity pricing and address the lack of a long-term price signal.

II. Resource Adequacy Measurement

A. How much generation is currently available to meet Zone 4 resource adequacy requirements?

[Examples of issues under this question should include: How much generation is currently available and what are the market shares of such generation owners? What types of generation resources are available and in what proportions? What are the fuel sources of current generation and in what proportions? What are the ages and current conditions of current generation? What are the capacity factors of current plants? How do name plate and unforced capacity impact the ability of generation resources to meet Zone 4 resource

Exelon Final Comments on Resource Adequacy in Central and Southern Illinois

adequacy needs? What generation is located within Illinois and what generation is outside Illinois and how does location impact availability or dependability?]

Exelon's Clinton Power Station is located in Zone 4 of MISO and has participated in MISO's PRA regularly. The nuclear generating facility is a single unit reactor that began providing power in 1987. The facility has a remaining useful life of 31 years (2046) and a net output of 1,078 MW. The facility serves more than one million homes and employs 717 personnel.

It should also be noted that imports are an important component of any capacity construct. However, they cannot be solely relied upon to ensure reliability in Zone 4. Regulated utilities in other states (outside of Zone 4) are not likely to build generation, assign the costs of that new build to their captive retail customers, and then use that generation to meet the future needs of Illinois' Zone 4. In addition, in the extreme example where only imports are used to meet the resource adequacy needs in Zone 4, this would lead to lost jobs and revenues in the state of Illinois as all the money paid to generators would shift to out of state, vertically owned utilities.

- B. What generation resources formerly meeting Zone 4 resource adequacy requirements have recently been lost due to retirement, derating, declining capacity factor, or otherwise?
- C. What current generation resources available to meet Zone 4 resource adequacy requirements are at risk of becoming unavailable going forward and what are the implications of the loss of such resources?

[Examples of issues under this question should include: Are there generating plants in Zone 4 that currently are "financially at risk" of shutting down? What are other reasons that existing generation may shut down? Is there data to support such an assessment? Is scenario modeling a reasonable approach for resource adequacy assessment? How does the loss of generation resources impact the capacity factors of remaining plants? Are any current federal or state energy policies adding risk for existing Zone 4 generator owners? How should the expected timing of retirements be considered? How would the retirement of generating units, individually or collectively, impact local economies?]

- D. What are the prospects for new generation resources becoming available to meet Zone 4 resource adequacy going forward?

[Examples of issues under this question include: How should resources within the current MISO interconnection queue be counted for purposes of assessing their value in meeting future Zone 4 resource adequacy needs? How will new renewables meet Zone 4 resource adequacy needs?]

Exelon Final Comments on Resource Adequacy in Central and Southern Illinois

In a competitive retail market, where recovery of generation investment is not rate regulated such as MISO Zone 4, investment in existing and new generation resources is dependent on expected market revenues from MISO's energy and capacity markets. Owners of existing assets facing incremental investment choices will ask whether revenues expected from MISO's energy and capacity markets justify an incremental investment. The answer is clear that MISO's current capacity construct will not promote continued investment in the assets (whether existing or new) necessary to ensure resource adequacy.

- E. What non-generation resources are and may be available to meet resource adequacy and how do such resources impact resource adequacy?

[Examples of issues under this question include: How do distributed generation resources, demand response resources, energy efficiency resources, and storage resources meet Zone 4 adequacy requirements? How will P.A. 99-0906 impact resource adequacy in Zone 4?]

There has been limited demand response and energy efficiency participation in Zone 4, likely due to the lack of a transparent, long-term price signal, which is crucial to a well-functioning capacity construct. For planning year 2017/18, 908 MW¹ of demand resources cleared in Zones 3, 4 and 5, which is only approximately 3% of the total resources cleared in those Zones. Exelon believes demand response is an important element of a functioning capacity construct and, while it cannot be exclusively relied upon to solve the challenges facing Zone 4, it can help meet resource adequacy needs. Further analyses should be undertaken to examine potential increases in demand response participation in MISO Zone 4.

- F. How well do existing programs and initiatives predict future resource adequacy?

[Examples of issues under this question include: How well does the OMS MISO survey address resource adequacy prediction? How well does NERC's 2017 Long Term Reliability Assessment address resource adequacy measurement in Zone 4?]

The annual Organization of MISO State (OMS) Survey is the most commonly referenced, publicly available tool used to analyze and assess resource adequacy in the MISO region. The OMS Survey has proved to be a beneficial tool but generators and regulators alike would benefit from clearer, more accurate and forward-looking information relating to generation available in the region. MISO has indicated previously that a very high percentage of generators and suppliers participate in the OMS Survey. While that is a positive trend, there is no guarantee that that will remain the case in the future.

¹ See 2017/18 PRA Results presentation, MISO must aggregate certain Zones for confidentiality purposes: <https://www.misoenergy.org/Library/Repository/Meeting%20Material/Stakeholder/RASC/2017/20170510/20170510%20RASC%20Item%2002a%202017-18%20PRA%20Summary.pdf>

Exelon Final Comments on Resource Adequacy in Central and Southern Illinois

The OMS Survey should be mandatory for generation resources intending to participate in MISO PRA Auctions.

III. Market Design Impact on Resource Adequacy

- A. What alternative opportunities are available to resources that could otherwise be used to meet resource adequacy in Zone 4 and how do these opportunities impact Zone 4 resource adequacy?

[Examples of issues under this question include: What opportunities do resources that could otherwise be used to meet resource adequacy in Zone 4 have to pseudo-tie or sell into non-Zone 4 capacity markets?]

- B. How does the transmission system impact resource adequacy?

[Examples of issues under this question include: How are capacity import limits and local clearing requirements tied to the transmission system? What is the impact of the MISO south-to-north transfer limit? What is the impact of MVP lines? How does the size of external capacity resources potentially available to meet Zone 4 resource adequacy needs compare to the amount of transmission available to import such resources into Zone 4? What is the Zone 4 resource adequacy value of generation resources within the ComEd Zone of PJM relative to the Zone 4 resource adequacy value of resources in MISO zones outside Zone 4? What is the impact of new transmission designed to transport intra-state renewables?]

- C. How do facilities owned by municipals and cooperatives affect resource adequacy?
- D. How does bilateral contracting, self-supply, and fixed resource adequacy planning affect resource adequacy?
- E. How do so-called out-of-market revenues (revenues separate and apart from those obtained in wholesale markets (e.g., Zero Emission payments or renewable energy credits) impact resource adequacy?

The recent adoption of the Zero-Emission Credit (ZEC) program in Illinois provides additional revenue to certain eligible nuclear units to compensate them for their clean air and environmental attributes. Based upon the ICC's Public Notice, dated January 26th only one such unit resides within MISO Zone 4 footprint. The ZEC program requires winning bidders to guarantee that they will operate for a ten (10) year period so this in turn provides a resource adequacy benefit to Illinois. The ZEC program explicitly targets nuclear units that would otherwise permanently retire.

IV. Scope

Exelon Final Comments on Resource Adequacy in Central and Southern Illinois

- A. Please provide commentary on any relevant substantive or process issue you believe has not been adequately captured in the Sections above.

[Examples of issues under this question include: Should any of the following topics have received time and attention, or more time and attention, in the workshops than they received: reliability, resilience, price stability, price level, consumer cost, sustainability, security, environmental/public health impact, potential policy initiative impact on rates, etc.? Should additional workshops or other processes be conducted and, if so, what topics should be examined? What actions that may be forthcoming (e.g., FERC actions, PJM or MISO tariff changes, corporate mergers) could impact resource adequacy or this Zone 4 assessment and how?]

The ICC Staff correctly examines a broad cross-section of solutions to the resource adequacy concern in Zone 4. Any such solution, however, must respect the great lengths to which Illinois has gone to advance its clean energy and environmental goals. Most recently, Governor Rauner's signature on the Future Energy Jobs Act (FEJA) ushered in a new era of clean energy policy in the State of Illinois. With FEJA, the State has greatly increased its investment in energy efficiency, renewable energy (including community solar), and nuclear energy. All of those investments are designed to maintain Illinois' position as the nation's leader in the production of zero-emission energy.

The MISO tariff is intended to be complementary and supportive of such state policies. As the ICC Staff notes, the tariff permits load serving entities to satisfy their capacity obligations through a fixed resource adequacy plan or FRAP. In Illinois, this would most likely involve procurement by the Illinois Power Agency (IPA) pursuant to additional authority delegated by the General Assembly. The General Assembly considered such a proposal in 2016 when it was debating the legislation that would ultimately become FEJA. Under that FRAP proposal, Illinois would have taken greater control of its long-term resource adequacy by directing the IPA to conduct competitive capacity procurements on behalf of Ameren to cover Ameren's Illinois capacity requirements. Those procurements would have been subject to approval by the ICC, with Ameren signing the contracts with selected resources. The proposed FRAP legislation contained detailed provisions addressing how those procurements would be conducted as well as consumer protections, including price benchmarks, that would have ensured the capacity was procured at a price that was cost-effective for consumers. Importantly, after a number of critical short-term procurements, it would have directed the IPA to develop long-term capacity procurement plans based on a 20-year planning horizon, and it would have authorized the IPA to award contracts with terms up to 10 years. This would have ensured that Illinois would no longer be subject to the annual one-year cycle of capacity auctions and the volatility that ensues.

Exelon Final Comments on Resource Adequacy in Central and Southern Illinois

Critical among the provisions in the FRAP proposal was the authority granted to the IPA to consider the environmental value provided by capacity from generating units that do not emit pollution such as sulfur dioxide, nitrogen oxide, carbon dioxide or hazardous air pollution like mercury and lead. Under that proposal, the cost of pollution would be considered in determining whether a resource was selected in the procurement, thus ensuring true competition between bids from emitting resources and non-emitting resources. Importantly, the formula for determining the value of avoided emissions in the FRAP proposal would have been applied to the bids of any non-emitting source of energy, whether renewable, hydro, demand resources, nuclear or clean coal. It would not, however, have been applied to the bids of units that are receiving payments for their environmental attributes through other programs or that are recovering their capital or operating costs through regulated rates. This would have ensured that the IPA was not double paying – or more to the point – ensured that the units would never be allowed to double dip. Only if non-carbon and other air pollution emitting units were uncompensated by Illinois or another state would the IPA consider the value of avoided emissions when evaluating their bids. This proposal had the support of Ameren and Dynegy.

However, we note that under the more recent FRAP proposal offered by Dynegy in SB 2250 (Clayborne/Rezin) during the current General Assembly, the ability of the IPA to select the resources that best meet the State’s environmental goals was eliminated.

Although the FRAP provision itself was not included in FEJA, certain stakeholders embraced the same objective federal standard for determining the value to consumers of receiving electricity from a non-emitting source, including it in the section of FEJA establishing a Zero Emission Standard. As the ICC considers potential solutions going forward, it must ensure that it does not take action that will inadvertently lead to emissions increases in Illinois, and the FRAP proposal considered last year is one way to guard against that outcome. While the Whitepaper notes the competitive pressures facing carbon and other air pollution emitting resources in the State, those pressures should not obscure the need for emissions to be considered when selecting resources that will best serve customers in Illinois.

V. Potential Policy Options

- A. What changes, if any, should be made to better enable measurement and assessment of what resources are available to meet Zone 4 resource adequacy requirements?

[Examples of issues under this question should include: Can, and if so how can, MISO’s plant retirement process be changed to better enable measurement of resource adequacy? Can, and if so how can, the OMS MISO survey (both load and resources) be revised to better enable assessment of resource adequacy? Can, and if so how can, MISO’s load forecasting methodology be revised to better enable assessment of resource

adequacy? Is there a role for MISO, Ameren Illinois or the ICC in improving industry trade press reporting of forward market prices for capacity bilaterally traded in MISO Zone? Should MISO renew its search for a MISO-implemented approach such as its former competitive retail solution initiative to assist resource adequacy in Zone 4?]

- B. What changes, if any, should be made to MISO's capacity construct including to the MISO planning resource auction to better ensure resource adequacy?

[Examples of issues under this question include: Should MISO move to a forward rather than prompt auction. Should MISO employ a sloped rather than vertical demand curve in its auction design? What changes, if any, should MISO make to address participation of capacity supplied by facilities that recover their costs through regulated rates?]

- C. What changes, if any, should be made to MISO's energy or ancillary service constructs that would help maintain resource adequacy?
- D. What actions should the Illinois Commerce Commission and/or the Illinois Power Agency take, if any, to address resource adequacy assuming no new legislative authority?

The ICC and the Illinois Power Agency should continue to explore all avenues to solving the resource adequacy challenges facing Central and Southern Illinois. In doing so, both should use their respective statutory authority to continue to analyze the shortcomings of the current construct and more thoroughly examine proposals put forward in this workshop process. In Exelon's view, there is an opportunity to more rigorously study the issue. A thorough analytical framework must be the predicate for changes to the capacity construct in MISO Zone 4 if those changes are to produce positive results. The ICC and IPA should consider creating a process for gathering and assessing data that could shed light on the shortcomings of the current capacity market construct. This body of information could serve a valuable purpose in informing and shaping the most cost-effective capacity market and administrative reforms.

- E. What actions should the Illinois General Assembly take, if any, to address Zone 4 resource adequacy?

[Examples of issues under this question include: Should the General Assembly pursue any of the legislative approaches addressed in the "Potential Policy Options" section of the November 1, 2017 ICC Staff White Paper. Should the General Assembly authorize the Illinois Commerce Commission to collect information for purposes of assessing resource adequacy from Illinois generation resources?]

Exelon Final Comments on Resource Adequacy in Central and Southern Illinois

As an initial matter, the Illinois General Assembly should explore legislation facilitating further analysis to the extent Illinois' state agencies are not already statutorily authorized or equipped to collect and/or examine information pertaining to resource adequacy in the state. Defining the problem and exploring the various solutions more thoroughly is the first step to take before developing a long-term solution.

F. Please describe any additional potential policy option(s) you would like to see considered or that you would recommend not be considered.

G. Is it important for any selected policy option to be market-based? If so, why? If not, why not?

Yes, any selected policy solution should deploy the powers of the competitive market. Illinois' embrace of competitive retail energy markets has produced savings for Illinois consumers and businesses. Exelon remains a steadfast supporter of efficient markets and proper market structures that benefit Illinois customers of all sizes. However, competitive wholesale markets must adhere to basic market design principles and send proper market signals to market participants. Rules must be adjusted when market outcomes reveal that the rules have grown outdated, as they have in this instance. These market rules are a vestige of a different regulatory scheme that does not fit MISO Zone 4.

Conclusion

The prospect of implementing changes to the MISO Zone 4 capacity construct remains a complex subject within the Illinois and MISO stakeholder communities for a variety of reasons. Several of the solutions that have been offered are designed to provide a greater long-term price signal to allow merchant generators to recover their costs and continue to retain existing generation resources and attract new investment. These solutions should be explored more fully.

Resource adequacy is essential to all Illinois stakeholders, including residential customers and large commercial and industrial customers, as a foundation to a functioning competitive market and the Illinois economy more broadly. Absent a solution to this issue, Zone 4 will continue to face the premature closure of baseload generating stations. If the overall market structure or the market structure for Zone 4 is not fixed and instead, small, incremental changes are made, the market construct will continue to fail to support long term resource adequacy in MISO Zone 4.

Exelon is encouraged at the work the ICC has undertaken to alleviate the resource adequacy challenges in MISO. Exelon is committed to engaging in this stakeholder process to produce the best outcome for the State of Illinois, as well as residents and businesses in Central/Southern Illinois. We are

Exelon Final Comments on Resource Adequacy in Central and Southern Illinois

confident that there is a policy outcome that can be economically beneficial for customers while maintaining the State's commitment to ensuring a healthy environment for its families and businesses.